

BULK SEPARATION OF SEMICONDUCTING AND METALLIC  
SINGLE WALL NANOTUBES

ABSTRACT

[0059] A method is described to bulk separate single wall nanotubes (SWNTs) by type (metallic (*met*-) from semiconducting (*sem*-)) and diameter. The separation is based on selective precipitation of either *sem*-SWNTs or *met*-SWNTs from a population of functionalized SWNTs. surfactant *N*-alkyl-amines, for example, preferentially solubilize *sem*-SWNTs and precipitate *met*-SWNTs, while non-surfactant amines to selectively precipitate *sem*-SWNTs, leaving the *met*-SWNT fraction in suspension. In addition, the selective precipitation method can be used to separate enriched populations of *sem*-SWNTs or *met*-SWNTs by diameter.